

GOVERNMENT OF INDIA
TARIFF COMMISSION



REPORT ON
The Continuance of Protection
to the Bichromates Industry

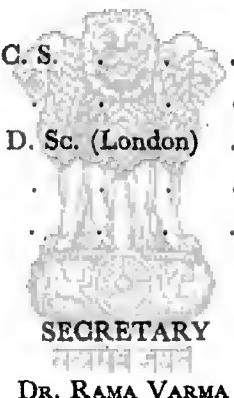


BOMBAY, 1958

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SHRI K. R. DAMLE, I. C. S.	<i>Chairman</i>
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DR. S. K. MURANJAN, D. Sc. (London)	<i>Member</i>
SHRI J. N. DUTTA	<i>Member</i>
SHRI R. S. BHATT	<i>Member</i>



GOVERNMENT OF INDIA
MINISTRY OF COMMERCE AND INDUSTRY
(DEPTT. OF HEAVY INDUSTRIES)
RESOLUTION

Tariffs.

New Delhi, the 1 August 1958.

No. 9(1)-T. R. /58.—The Tariff Commission has submitted its Report on the continuance of protection to the Bichromates Industry on the basis of an inquiry undertaken by it under Sections 11(e) and 13 of the Tariff Commission Act, 1951. Its recommendations are as follows :—

- (1) Protection granted to the bichromates industry should be discontinued with effect from 1st January, 1959.
 - (2) Government should examine the complaints of non-availability of arsenic pentoxide, boric acid and borax, and permit import of the required quantities of these materials by manufacturers of wood preservatives.
 - (3) The Export Promotion Council for Leather should take note of the observations made in the Report and explore the possibilities of exporting increased quantities of crome tanned leather and glace kid.
 - (4) Producers of bichromates should bring down their selling prices in fair relation to their costs.
 - (5) The industry should explore the possibility of promoting exports of bichromates to countries with whom the Government of India has entered into Trade Agreements in which bichromates have been specifically mentioned as one of the articles of export from India and to other markets.
2. Government accept recommendation (1) and will take suitable steps to implement it in due course.
3. Government have taken note of recommendations (2) and (3) and steps will be taken to implement them as far as possible.
4. The attention of the industry is invited to recommendations (4) and (5).

ORDER.

ORDERED that a copy of the Resolution be communicated to all concerned and that it be published in the *Gazette of India*.

S. RANGANATHAN,
Secretary to the Government of India.

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REPORT ON THE CONTINUANCE OF PROTECTION TO THE BICHROMATES INDUSTRY.

1. The claim of the bichromates industry to protection or assistance was first referred to the Tariff Board by the Government of India in the late Department of Commerce by Resolution No. 218-T(55)/45, dated 3rd November, 1945. The Tariff Board submitted its Report in May 1946 recommending, *inter alia*, the

Previous tariff inquiries. conversion of the then existing revenue duty of 30 per cent. *ad valorem* into an equivalent protective duty upto 31st March, 1949 and the application of the protective duty to "Sodium bichromate, potassium bichromate and all chrome compounds". Government accepted the recommendation in regard to the scope of protection and the rate of duty but decided that the period of protection should be limited to one year in the first instance, on the ground that the quantum of protection was not determined by the Board on the basis of cost of production of an economic unit. A review could not, however, be undertaken until December 1948, when the Board carried out a summary investigation and recommended that protection to the industry should be continued upto 31st March, 1950. The duration of protection was accordingly extended upto 31st March, 1950. The second inquiry into this industry was undertaken by the Tariff Board in 1949. In its Report submitted to Government in October of that year the Board recommended continuance of protection at the existing rate of 30 per cent. *ad valorem* upto 31st March, 1952, and the recommendation was accepted by Government. Under the Finance Act, 1951, the protective duty on bichromates was enhanced to 31½ per cent. *ad valorem*. Subsequently, the period of protection was extended by Government, in consultation with the Tariff Commission, first to 31st December, 1952, subsequently to 31st December, 1953 and again to 31st December, 1954. The inquiry into the question of continuance of protection to the industry beyond 31st December, 1954 was undertaken by the Commission in the second half of 1953 and its Report recommending continuance of protection at the existing rate of duty of 31½ per cent. *ad valorem* was submitted in March 1954. This recommendation was accepted by Government and the period of protection was extended upto 31st December, 1958 by the Indian Tariff (Second Amendment) Act, 1954. The rate of protective duty was raised, to 35 per cent. *ad valorem* with effect from 16th May, 1957 by the Finance (No. 2) Act, 1957.

2. The protection granted to the bichromates industry is scheduled to lapse on 31st December, 1958. The present inquiry was, therefore, undertaken by the Commission under

Present inquiry. Section 11(e) read with Section 13 of the Tariff Commission Act, 1951, which empowers the

Commission to inquire into and report on any further action required in relation to the protection granted to an industry, with a view to its increase, decrease, modification or abolition according to the circumstances of the case.

3.1. On 12th December, 1957 the Commission issued a press note inviting producers, importers and consumers to obtain the relevant questionnaires from the Secretary to the Commission and furnish replies to them. A list of producers, importers, consumers and associations to whom the Commission's questionnaires

Method of inquiry. were issued and from whom replies were received is given in Appendix I. The Chief Industrial Adviser, Development Wing was requested to furnish a detailed memorandum on the present position of the industry. The Directors of Industries of the States of Bombay, Madras, Uttar Pradesh and West Bengal were addressed for memoranda on the present position of the industry in their respective States. As imports of bichromates have been banned during the last few years, c.i.f. prices of actual imports could not be obtained from Collectors of Customs. The Indian Government's Trade Representatives in the United Kingdom, U. S. A. and West Germany were, therefore, requested to furnish data regarding the current c.i.f./f.o.b. prices of sodium and potassium bichromates in those countries. The Textile Commissioner, Bombay, the Director (Export Promotion) in the Ministry of Commerce & Industry, New Delhi, the National Chemical Laboratory, Poona, the Forest Research Institute, Dehra Dun, the Central Leather Research Institute, Madras, the National Research Development Corporation of India, New Delhi and the All India Khadi and Village Industries Commission, Bombay were addressed for information on specific issues relevant to the inquiry.

3.2 Shri K. R. Damle, Chairman, and Shri R. S. Bhatt, Member, visited the factory of Cawnpore Chemical Works Private Ltd., Kanpur on 27th December, 1957. The Chairman and Dr. S. K. Muranjan, Shri J. N. Dutta and Shri R. S. Bhatt, Members and Shri S. S. Mehta, Technical Director (Chemicals) visited the factory of Golden Chemicals Private Ltd., Bombay on 30th January, 1958. Shri R. S. Bhatt, Member and Shri S. S. Mehta, Technical Director (Chemicals) visited the bichromates factory of Buckingham and Carnatic Co. Ltd., Madras on 6th February, 1958. They also visited the Central Leather Research Institute, Madras on 7th February, 1958. Shri U. R. Padmanabhan, Assistant Cost Accounts Officer of the Commission visited the factories of Cawnpore Chemical Works Private Ltd., and Golden Chemicals Private Ltd., in January 1958 for examining the cost of production of bichromates at these factories.

3.3. A public inquiry into the industry was held at the Commission's office on 18th February, 1958. A list of persons who attended the public inquiry is given in Appendix II.

4.1. We set out below the recommendations on matters other than tariffs made by the Commission in its last Report (1954) and indicate the extent to which they have been implemented.

Recommendations made by the Commission on matters other than tariffs in its last Report (1954).

4.2. "The industry should be granted a refund of the customs duty paid by it on imported soda ash which is used in the manufacture of bichromates for export."

This recommendation has been implemented, by Notification No. 190-Customs, dated 26th August, 1957, the Ministry of Finance (Department of Revenue) issued the Customs Duties Drawback (Dichromates) Rules, 1957 allowing drawback of duty in respect of the imported material (soda ash of heavy variety) at specified rates for every hundredweight of bichromates exported from India or the State of Pondicherry. The rates were slightly increased with effect from 13th January, 1958, as indicated below:—

Goods exported	Rates of drawback per cwt. of goods exported		
	Rate from 26-8-1957	Revised rate from to 13-1-1958	12-1-1958
Sodium dichromate dihydrate	2.60	3.00	Rs. Rs.
Anhydrous sodium dichromate	3.00	3.45	
Potassium dichromate	2.70	3.10	
Ammonium dichromate	3.10	3.60	
Chromic acid	3.90	4.55	

4.3. "The Central Government should draw the attention of the State Governments, Railways, local authorities and semi-Government bodies to the substantial benefit likely to accrue to the domestic bichromate industry by their adoption of khaki uniforms. The attention of the All India Khadi and Village Industries Board may also be drawn to this matter so far as khadi uniforms are concerned."

The Ministry of Commerce and Industry informed us in March 1956, that most of the States were willing to introduce khaki uniforms and to make necessary arrangements in this regard.

4.4. "Steps should be taken in consultation with the Forest Research Institute, Dehra, Dun, to encourage wood preservation by chemical treatment, as this will result in increased consumption of bichromates."

We are informed that wood poles for electric transmission, telegraph and telephone lines are now treated with the preservative, namely, Ascu which contains bichromates to the extent of approximately half its weight. In view of the present shortage of creosote, the Forest

Research Institute has also recommended the use of Ascu for the preservation of wood required for railway sleepers and other articles for which creosote was hitherto used as a preservative.

4.5. "The National Chemical Laboratory has evolved a process for the purification of sugar-cane wax which is likely to offer an additional outlet for bichromates. The question of commercial exploitation of this process should be given early consideration."

We are informed by the National Chemical Laboratory that the modified sugar-cane wax has been favourably received in different lines of manufacture e.g., carbon paper, polishing creams, etc. and that the commercial exploitation of the process of purification is being finalised with the co-operation of the National Research Development Corporation of India. Its success would depend upon the economic disposal of basic chrome salts which are obtained as by-products in this process. Basic chrome salts find use in the tanning industry which at present obtains them by reduction of sodium bichromate. It would appear, therefore, that the demand for bichromates for this process would be offset by an equivalent reduction in the demand for bichromates by the tanning industry and in consequence there will be no additional outlet for bichromates through the introduction of this process.

4.6. "The desirability of liberalising the export policy regarding mineral khaki cloth or, alternatively, of bringing about an increase in the capacity of the more efficient mills, if the existing capacity of such mills is considered inadequate to permit a liberalisation of exports, should be considered with a view to expanding the total production of mineral khaki cloth in the country and thereby increasing the consumption of bichromates."

The export policy regarding mineral khaki cloth has been liberalised since February 1955. At present the export of mineral khaki drill, mineral khaki cellular shirting, mineral khaki other fabrics and apparel made of mineral khaki cloth produced by mills as well as mineral khaki drill and cellular mineral khaki shirting processed by factories other than mills are licensed freely.

4.7. "The Central Government, in consultation with the State Governments concerned, may examine whether the prices charged by the suppliers of high-grade chrome ore are fair in relation to the current prices of low-grade ore."

The State Governments concerned have informed the Central Government that, in their view, the prices charged by the suppliers of high-grade chrome ore are in fair relation to the prices of low-grade ore.

4.8. "The bichromate manufacturers have pointed out certain lacunae in the present import control arrangements regarding sodium bichromate, chromic acid and Brunswick Green which may be looked into. Complaints about the quality of indigenous chromic acid should be thoroughly investigated before imports are allowed."

This recommendation has been implemented.

4.9. "The Golden Chemicals, Ltd., Bombay, and the Pioneer Chromate Works Ltd., Bombay, have formulated schemes for modernising their plants and processes of production. These schemes may be examined by the Development Wing of the Ministry of Commerce and Industry and if they are found feasible, necessary assistance may be given to the firms in implementing them."

The Golden Chemicals Private Ltd., has carried out several additions and alterations in its plant including the replacement of its old furnaces by batch type rotary furnaces. The other unit, Pioneer Chromate Works Ltd., has, however, closed down its factory.

4.10. "The industry should take up the question of freight rates on its materials again with the transport authorities and the latter should give it further consideration in the light of the special circumstances of location of the factories operating to the disadvantages of the companies. The industry should also be given reasonable transport facilities for its materials".

We understand that the Railway Freight Structure Enquiry Committee has gone into the question fully and that its Report is now under the consideration of Government.

4.11. "The bichromate factories which at present depend mainly on Magadi soda ash should try to use indigenous ash to the fullest extent possible in preference to imported ash".

The requirements of soda ash in the country are not completely met by indigenous production and some quantity of it has, therefore, to be imported from abroad. In view of the lower price of Magadi soda ash the industry prefers to use imported soda ash.

4.12. "The Buckingham and Carnatic Mills should explore the possibility of reducing their cost of lime."

The Company has not been able to make any substantial reduction in the cost of lime, as it continues to operate its old country lime kilns. It intended to instal a modern kiln but owing to foreign exchange difficulties had to defer its programme.

4.13. "In the case of some units, there is scope for economy in the use of raw materials and such units should make further efforts in this direction."

Those units whose consumption of raw materials was high, have gone out of production. The major units, now in production, have effected economies in the consumption of materials to a limited extent.

4.14. "The quality of indigenous bichromates has been found generally satisfactory. The manufacturers should, however, endeavour to maintain the strength of their product at 99 per cent. A more careful inspection of the second-hand drums used by the industry is necessary in order to improve the packing of the product."

The general opinion of consumers is that the quality of indigenous bichromates is satisfactory and that the products conform to I.S.I. specifications. No complaints have been received regarding the packing.

5.1. The bichromates industry was established in India in 1940 to meet the demand during the Second World War which could not be fulfilled by imports. Government had given an assurance of protection to the industry against foreign competition after the War by such measures as Government might devise. As a result, many units were established in the country of the manufatcure of bichromates. There were 17 units engaged in the production of bichromates when the Tariff Board first examined the claim of the industry to protection in 1946. Since then owing to the decline in demand following the end of the War and severe internal competition, several units closed down, thereby bringing the number to 11 in 1949. In 1953, the number of units went down to 8; the names of the units which were in production in that year and their annual rated capacity are given below :—

Name of the unit	Annual rated capacity (Tons)
1. Hindustan Chemical Works Ltd., Bombay	720
2. Pioneer Chromate Works Ltd., Bombay	1,000
3. Premier Chromate and Chemical Works Ltd., Bombay	1,000
4. Golden Chemicals Private Ltd., Bombay	600
5. Buckingham & Carnatic Co. Ltd., Madras	1,200
6. Government Dichromate Factory, Belagula, Mysore	360
7. The Cawnpore Chemical Works Private Ltd., Kanpur	1,000
8. The Chemical Industries Co. Private Ltd., Calcutta	180
TOTAL	6,060

5.2. Production in the bichromates industry has remained far below the rated capacity and in this situation internal competition was intensified further thereby undermining the position of some units which were already in difficulties. In consequence four more units went out of production after the last inquiry. Premier Chromate and Chemical Works Ltd., closed down in 1953, Hindustan Chemical Works Ltd., in 1954, Government Dichromate Factory in 1955 and Pioneer Chromate Works Ltd., in 1956. A new unit namely M. L. Ghosh & Co., was established in Calcutta; it produces a small quantity of bichromates mostly for its own use. Thus there are at present five units in production in the country. Their aggregate capacity for production of sodium

bichromate (inclusive of capacity for the production of potassium bichromate) is 4,546 tons per year. Production during the last five years was as follows:—

Year	Sodium	Potassium
	Bichromate Tons	Bichromate Tons
1953	2,323	140
1954	2,996	212
1955	2,726	210
1956	3,046	218
1957	3,482	201

A statement showing the capacity and production of each unit is given in Appendix III.

5.3. Despite the closing down of some of the units which resulted in the reduction of operative rated capacity, evidence shows that the industry has achieved a measurable progress since the last inquiry. First, the rated capacity of the units which are in production was utilized to a larger extent than before as indicated by the sustained rise in production in response to the growth of domestic demand during the last three years; secondly, two of the major producers have increased their individual capacity after the last inquiry and have taken steps to modernise their equipment with a view to improving the manufacturing process; thirdly, there has been a noticeable diversification in the pattern of production as major units in this industry and other manufacturers using bichromates have stepped up their production of by-products and derivatives. Golden Chemicals Ltd., has expanded its capacity from 600 tons to 1800 tons per year by the replacement of its old furnaces by batch type rotary furnaces. Buckingham and Carnatic Co. Ltd., has increased its capacity from 1200 tons to 1500 tons per year by additions and improvements in its plant and equipment. We are further informed that one of the units, namely Golden Chemicals Private Ltd., has applied for a licence under the Industries (Development and Regulation) Act, 1951 for expansion of its capacity to 3600 tons per year.

5.4. Brief particulars regarding each of the three major units are given below.

5.4.1. **Golden Chemicals Private Ltd., Bombay.**—This is a private limited company registered at Bombay in 1941 and its factory is located at Jogeshwari, Bombay. This unit went into production in 1942. The authorised capital of the Company is Rs. 2 lakhs and the paid-up capital is Rs. 1 lakh. The original cost of the fixed assets of the Company as on 30th June, 1957 was Rs. 5.69 lakhs and the depreciated value Rs. 2.73 lakhs. The Company's activities are confined to the production of bichromates and its by-product, namely sodium sulphate.

The total sales turnover during 1956-57 was Rs. 24.7 lakhs of which the sale of bichromates constituted Rs. 20.7 lakhs and by-product Rs. 4 lakhs. The average labour force of the Company was 265 during 1956-57. After the last inquiry the Company has increased its capacity and improved its efficiency by the installation of new equipment. Its old furnaces have been replaced by oil-fired rotary furnaces of batch type. A waste-heat boiler and forced circulation evaporators have been installed with a view to economising the secondary fuel consumption.

5.4.2. Buckingham & Carnatic Co. Ltd., Madras.—This is a public limited company with an authorised capital of Rs. 250 lakhs and subscribed and paid-up capital of Rs. 199.8 lakhs. As on 31st December, 1956, debenture stock amounting to Rs. 78 lakhs was outstanding. The bichromate plant of the Company which was established in 1940 constitutes a small section of the activities of the Company which manages two composite textile mills and three cotton pressing and ginning factories. The bichromate plant is an integral part of the organisation, having been established solely for the purpose of manufacture of sodium bichromate for use in the Company's own mills. The average number of workers employed by the unit was 203 in 1957. Besides sodium and potassium bichromates, the Company manufactures anhydrous sodium sulphate, sodium sulphide and a wide range of derivatives, like basic chrome tan, chrome oxide green, chromic acid, sodium chromate and ammonium bichromate. Subsequent to the last inquiry, the Company carried out several additions and improvements in its bichromate plant. It renovated the system of extraction of chromate from the roasted material resulting in improvement in extraction efficiency. It also equipped one of its furnaces with a waste-heat boiler to recover the heat from the flue gases by using them to produce steam. Further it commissioned the sodium sulphide plant and undertook the production of basic chrome tan on a commercial scale. Lastly, it extended its chrome oxide green plant to meet the growing requirements in the country.

5.4.3. The Cawnpore Chemical Works Private Ltd., Kanpur.—This is a private limited company registered in Lucknow in 1928 and its factory is located in Kanpur. The Company manufactures a wide range of chemicals in addition to bichromates. The bichromate plant was established in 1941. The authorised capital of the Company is Rs. 10 lakhs and its paid-up capital Rs. 4 lakhs. The value of sales of bichromates, by-product and derivatives was Rs. 11.17 lakhs in 1956-57. This constituted about 34 per cent. of the total sales turnover, which was Rs. 32.67 lakhs. The average labour force employed in the manufacture of bichromates was 220 in 1957. There has been no addition to equipment for bichromates but the process of manufacture has been so adapted as to discontinue the use of lime or limestone.

6.1. By-products.—The only by-product obtained in the production of bichromates is sodium sulphate. This is obtained in an impure form containing residues of bichromate and has therefore to be refined before it can be marketed.

By-products and derivatives.

The three principal manufacturers of bichromates are recovering fully the sodium sulphate

obtained in the process. Golden Chemicals converts the entire quantity into anhydrous sodium sulphate while Buckingham and Carnatic Co. and Cawnpore Chemical Works convert a part of it into anhydrous sodium sulphate and utilize the balance for production of sodium sulphide. It should be added that in addition some of them produce anhydrous sodium sulphate from the crude sodium sulphate obtained from mineral as well as other sources. The production of anhydrous sodium sulphate was as follows :—

	(In tons)				
	1953	1954	1955	1956	1957
Cawnpore Chemical Works .	395	424	380	440	457
Buckingham and Carnatic Co. Ltd. . .	81	283	199	262	244
Golden Chemicals . .	827	1,220	1,287	1,142	1,517
TOTAL . .	1,303	1,927	1,866	1,844	2,218

6.2. Derivatives.—The main derivatives of bichromates that are produced in the country either by the manufacturers of bichromates or by the producers of fine chemicals and paints are: basic chrome tan, chromium sulphate, chromic acid, chrome salt, chrome oxide green, potash chrome alum, ammonium bichromate, sodium chromate and chromium pigments. Besides Buckingham & Carnatic Co. Ltd., and Cawnpore Chemical Works Private Ltd., there are two other units, Kesar Sugar Works Ltd., Bombay and Phoenix Chemical Works, Bombay which are in regular production of chrome compounds. Chrome pigments are produced by various units in the paint industry. The following statement gives the present annual capacity and production of chrome compounds by each of the four units during the last five years.

Name of the Unit	Annual rated capacity (Tons)	Production (Tons)				
		1953	1954	1955	1956	1957
1. Buckingham and Carnatic Co. Ltd. . .	735	33	8	188	287	377
2. Cawnpore Chemical Works Private Ltd. . .	65	4	10	6	13	22
3. Kesar Sugar Works Ltd. . .	180	..	20	28	32	48
4. Phoenix Chemical Works . .	148	16	33	31	37	46
TOTAL . .	1,128	53	71	253	369	493

It will be observed that in respect of derivatives there has been an improvement in the utilisation of the installed capacity through a progressive rise in output since the last inquiry. Generally production is adjusted to demand for these chemicals and in some cases manufacture is undertaken only against specific orders.

7.1 In its last Report in 1954 the Commission had estimated the annual domestic demand for sodium bichromate at 2,400 tons and for potassium bichromate at 150 tons. The breakdown of demand for sodium bichromate according to the consuming industries was given as under:

Domestic demand.

	Tons
Tanneries	1,330
Textile industry	700
Paints & pigments, wood preservation and others	370
	<hr/> 2,400

7.2. In connection with the present investigation, we have received estimates of demand from various sources. The Development Wing estimated the demand for bichromates for 1957 at about 3,400 tons on the basis of the quantity available for consumption from domestic production. The estimates submitted by the producers ranged between 2,800 tons and 3,950 tons. We have also received estimates of their requirements from some of the consuming industries.

7.3. The estimates for bichromates for 1957 were discussed at the public inquiry. It was the general view of the representatives of the various interests present at the inquiry that since both imports and exports have been negligible, it would be reasonable to accept production of bichromates in the country as reflecting approximately the current domestic demand. The production of sodium bichromate was 2,726 tons in 1955, 3,046 tons in 1956 and 3,482 tons in 1957 which indicates a rising trend of consumption. The demand for bichromates emanates mainly from two sources, the textile and the leather industries, though recently there has been a markedly upward trend in the consumption of bichromates by paints and pigments, wood preservation and other miscellaneous industries. The Textile Commissioner has estimated the current annual demand at 780 tons. We were informed that the production of mineral khaki cloth has gone up and there has been a growing demand for this variety which has proved popular both in the domestic and overseas markets. With the liberalisation of the export policy, the textile mills which are engaged in export business have been encouraged to step up their production of mineral khaki cloth. It seems, therefore, that there has been an increased offtake of bichromates by the textile industry. This is corroborated by the figures

of actual sales to the textile industry in 1957 furnished by three producers which aggregated 1137 tons. We are, therefore, inclined to think that the Textile Commissioner's estimate is on the low side and consider that after taking into account the requirements of outside processors it would be reasonable to place it at 1200 tons. With regard to demand from the leather industry, the Central Leather Research Institute estimated it at 1610 tons in 1957. The demand for bichromates from the chrome tanning industry appears to have remained somewhat static for we were informed at the public inquiry that there has been no material increase in consumption in the main centres where it is located e.g., Calcutta, Kanpur, Madras and Bombay. For the organised industry the shortage of hides and skins of good quality continues. A very large section of the leather industry comprises of small scale and cottage units which follow traditional methods of vegetable tanning and we understand that it has not been possible so far to induce them to adopt chrome tanning on any appreciable scale. We are informed that the aggregate sales of the three units to the leather industry in 1957 amounted to 1169 tons. After carefully considering the available evidence we have come to the conclusion that the demand for bichromates for chrome tanning would not exceed 1400 tons. Judging the increased offtake of bichromates from the paints and pigments industry and wood preservation and other miscellaneous industries in the light of actual sales to them by the three main producers, which include bichromates used in the production of potassium bichromate and derivatives, we have estimated the total demand for bichromates in 1957 at 3,500 tons which is made up as under :—

	Tons
Leather tanning	1,400
Textiles	1,200
Paints and pigments	300
Potassium bichromate	250
Miscellaneous (wood preservation, chromic acid, etc.)	350
	<hr/> 3,500

7.4. Future Demand

7.4.1. As regards future demand also, we have received divergent estimates. The Development Wing has estimated that the overall demand for bichromates would increase to 5,000 tons in 1960-61. Golden Chemicals has placed it at 4,700 tons in 1959 and 5,450 tons in 1960. The consensus of opinion among those present at the public inquiry was that the demand for bichromates would progressively increase in the next three years.

7.4.2. The leather tanning industry is one of the largest consumers of bichromates. Under the programme of development of this industry under the Second Five Year Plan it is estimated that, assuming the

1955 production of tanned hides and skins at about 46 million pieces (21 million hides and 25 million skins) and the exports to keep steady at the 1955-56 level during the Second Plan period, the demand in 1960-61 should be about 23 million hides and 26 million skins. It is suggested that the additional demand for tanned hides and skins should be met by (1) the fuller utilisation of the existing capacity in the organised sector and (2) initiating developments in the Small Scale and Cottage Sector of the industry. Of the 24 units in the organised sector 13 tanneries have a capacity for chrome tanning of 1.679 million hides, the capacity in actual use being about 50 per cent. If this capacity were fully utilised, there would be some improvement in the offtake of bichromates from the organised industry. Further, the development programme in the Cottage and Small Scale Sector of the tanning industry aims at raising the present low level of technical efficiency of small tanners by providing common service facilities for improved tanning, finishing, etc. at various centres. We are informed that India exports vegetable tanned hides and skins of the value of about Rs. 20 crores every year. These semi-finished hides are put through chrome tanning process and finished for making shoes and other articles in the importing countries. If even a part of these hides were chrome tanned and finished and skins were processed for the production of glace kid in this country it will not only increase the demand for bichromates but will earn valuable foreign exchange for the country. The tanneries which produce these semi-finished hides are scattered in villages and depend mostly on manual labour. We were informed by the Central Leather Research Institute that these tanners are extremely conservative and so much accustomed to traditional methods that it is not easy to convert them to modern methods of tanning. The structure and organisation of this industry is such that only gradual improvement can be brought about through the organised efforts of the Khadi and Village Industries Commission and the Development Commissioner, Small Scale Industries. For encouraging small producers to adopt chrome tanning requisite facilities should be made available either at the large producing centres of hides and skins or in the port towns from where they are exported. The Central Leather Research Institute should be in a position to afford positive assistance to small producers of hides and skins in this regard. We recommend that the Export Promotion Council for Leather should take note of our observations above, and explore the possibilities of exporting chrome tanned leather and glace kid to an increased extent.

7.4.3. As regards the future demand for bichromates from the wood preservation industry, we are informed that at present two articles, namely, creosote and Ascu, are largely used for wood preservation, the former being preferred for treatment of wood required for railway sleepers and the latter for poles, door fittings and building structures. Recently, difficulties have been experienced in obtaining creosote from foreign countries. The Forest Research Institute considers that locally produced Ascu can be used as a satisfactory substitute for creosote. Ascu contains one part of arsenic pentoxide, three parts of copper sulphate and four parts of bichromates. Of these, arsenic pentoxide has

to be imported. We were informed that considerable difficulties are experienced in obtaining arsenic pentoxide. We understand that it is possible to utilise boric acid and borax in place of arsenic pentoxide. Boric acid and borax have also to be imported. Since these materials are indispensable for preparing the preservatives and as the wood preservation industry is vital to the nation's economy, we recommend that Government should examine the complaints of non-availability of arsenic pentoxide, boric acid and borax and permit importation of the required quantities of these materials by actual users.

7.4.4. In future the prospects of demand for bichromates developing for the manufacture of derivatives are considerable, for, the progress of the bichromates industry is interlinked with the growth of other industries in the country. It is, however, not possible to formulate precisely the quantum of demand for bichromates from these various sources. But taking the past trends into consideration, we expect the demand for bichromates to increase steadily to 5,000 tons a year by 1960.

7.5. With regard to the demand for by-products and derivatives we are informed by the Development Wing that the current demand for sodium sulphate is estimated at 26,000 tons per annum. It is expected that the demand will go up to 65,000 tons per year by 1960-61. The indigenous production of anhydrous sodium sulphate by the three principal producers of bichromates was 2,218 tons in 1957. The demand for chromic acid was estimated at about 100 tons in 1957 and was expected to rise to 125 tons in 1958 and 150 tons in 1959. Though the demand for some of the derivatives is at present sporadic and their production is intermittent, it appears that demand for these materials is likely to expand in the next three years.

8.1. The raw materials used in the manufacture of bichromates are (i) chrome ore, (ii) soda ash, (iii) sulphuric acid and (iv) lime or limestone. Coal or furnace oil is used as fuel.

Raw materials and fuel. The present position of raw materials is briefly stated below :—

8.2. Chrome ore.—There is no difficulty in obtaining high grade chrome ore which is available in plenty in the country, the chief sources of supply being the states of Mysore, Orissa and Bihar. The chrome content of Orissa ore is stated to be 57 per cent. as compared with about 48 per cent. of Mysore ore. The yield from Orissa ore being higher it makes for greater productive efficiency. We were informed that the industry, therefore, prefers Orissa ore though its price is higher than that of Mysore ore.

8.3. Soda ash.—The industry is using at present mostly imported Magadi ash. It can use light ash produced in the country and we were informed that some units are obtaining a part of their requirements from this source. But the supplies of the indigenous light soda ash are somewhat irregular and the price is higher than that of the imported

soda ash. The industry has therefore to resort largely to the use of Magadi ash. The price at which the industry has been obtaining soda ash has remained almost steady since the last inquiry.

8.4. Sulphuric acid.—No difficulty is experienced by the industry in getting supplies of sulphuric acid. There has been an informal control on the prices of sulphuric acid and normally the industry obtained its requirements at the scheduled rates. One of the units, namely Golden Chemicals, however, had difficulty in securing its requirements of the acid at a reasonable price when one of the sulphuric acid plants in Bombay suspended production for a short period. There has been a slight reduction in the price of sulphuric acid since the last inquiry.

8.5. Lime or limestone.—The bichromates industry continued to obtain supplies of lime or limestone from the established sources and prices have remained steady. One of the units namely, Buckingham and Carnatic Co. Ltd., was obliged to transport lime from Rayalcheruvu by road as it was unable to get railway wagons regularly, which tended to increase the cost of lime.

8.6. Fuel.—There has been a small increase in the pit-head price of coal and railway freight charges after the last inquiry. The price of furnace oil, however, remained steady.

8.7. Consumption of raw materials and fuel.—One of the recommendations in the last report of the Commission was that in case of some units, there was scope for economy in the use of raw materials and such units should make further efforts in that direction. The following statement gives the comparative figures of consumption of raw materials and fuel per ton of sodium bichromate by the three principal units in the industry at the time of the last investigation in 1953 and in 1957.

(Per ton of sodium bichromate)

Raw Materials	Buckingham & Carnatic		Cawnpore Chemicals		Golden Chemicals	
	1953	1957	1953	1957	1953	1957
	Tons	Tons	Tons	Tons	Tons	Tons
Chrome ore	1.31	1.17	2.05	1.43	1.50	1.27
Soda ash	0.75	0.84	1.04	1.10	1.05	0.99
Limestone	0.97	1.09	0.42	*	1.00	0.86
Sulphuric acid	0.38	0.40	0.51	0.38	0.54	0.51
Coal (Furnace)	N.A.	2.75			..	
Coal (Evaporation)	N.A.	2.00	7.78	6.27	1.06	0.61
Furnace oil (Furnace) .. . . .	..	..	..	..	2.26	1.03

*This company does not use limestone at present.

It will be noticed from the above table that there has generally been a downward trend in the consumption of raw materials which indicates an improvement in the productive efficiency of the industry as a whole.

9.1. The manufacturers of bichromates claimed that their products conform to the standard specifications formulated by the Indian Standards Institution (I. S. 249-1951 for sodium bichromate and I. S. 250-1953 for potassium bichromate) and that there was no variation in the quality of their products. The Development Wing has corroborated this statement. The Central Leather Research Institute, Madras, the Millowners' Association, Bombay, Western India Match Co., Ltd., Bombay and several other consumers have expressed favourable opinions regarding the quality of indigenous bichromates.

At the public inquiry the consensus of opinion was that the quality of indigenous bichromates was satisfactory and that it conformed to the Indian Standard Specifications. One manufacturer of paints, however, represented to us that the product should be made available in larger crystals of about $\frac{1}{2}$ " size. The producers explained that there was no difficulty in producing crystals of larger size provided the consumer was prepared to bear the extra cost involved in additional processing. Another consumer complained that the indigenous sodium bichromate tended to be lumpy during the rainy season. Sodium bichromate absorbs moisture when exposed to air. This complaint could be accepted only if it was proved that the material as purchased in sealed drums was found to have excessive moisture.

9.2. With regard to the quality of by-products and derivatives, it is reported that the quality of the indigenous products is generally satisfactory.

10. Imports of bichromates have been banned since 1953, but small imports are reported to have taken place, presumably for laboratory purposes. Imports of sodium bichromate and potassium bichromate are separately recorded in the published 'Accounts relating to the Foreign Trade of India'. There were wide

Import control and imports. disparities between the figures of quantity and value for certain periods and the matter was taken up with the Director General of Commercial Intelligence and Statistics. The following statement gives published figures of the quantity and value of bichromates imported into the country from 1953-54 to first six months of 1957-58, as revised by the Director General of Commercial Intelligence and Statistics.

Year	Sodium Bichromate		Potassium Bichromate	
	Quantity	Value	Quantity	Value
1953-54	.	.	..	127
1954-55	.	.	Nil	Nil
1955-56	.	.	3	854
1956-57	.	.	..	66
1957-58 (April to September, 1957)	.	..	34	8
	Cwt.	Rs.	Cwt.	Rs.
1953-54	..	127	10	1,420
1954-55	Nil	Nil	5	1,808
1955-56	3	854	2	649
1956-57	..	66	5	1,652
1957-58 (April to September, 1957)	..	34	8	1,917

With effect from 1st January, 1957, the imports of ammonium dichromate, chromic oxides (except pigments) and chrome compounds NES are also recorded separately in addition to sodium bichromate and potassium bichromate in the Foreign Trade Statistics. The imports of these articles for the nine months ended September 1957 were as follows :—

	Quantity	Value
	Cwts.	Rs.
Ammonium dichromate	24	8,458
Chromic oxides except pigments	1	55 ²
Chrome compounds, NES.	118	26,776

11. Sodium bichromate, potassium bichromate and chrome compounds are assessed to duty under item No. 28(17) of the First Schedule Existing rate of duty. to the Indian Tariff Act, 1934. The relevant extract from the Schedule is given below :—

Item No.	Name of the article	Nature of duty	Standard rate of duty	Preferential rate of duty if the article is the pro- duce or manufacture of		Duration of protective rates of duty
				U. K.	British Colony	
28 (17)	Potassium Bichro- mate, Sodium Bic- chromate and all chrome compounds	Protective	35 per cent. ad valorem	..	10 per cent. ad valorem	December 31 st 1958.

12. In view of the ban on imports of bichromates, it was not possible to ascertain c.i.f. prices of actual imports from the usual sources in the country. We, however, obtained from C. i. f. prices. Indian Trade Representatives in the United Kingdom, the U. S. A. and West Germany information regarding c.i.f./f.o.b. quotations of bichromates in those countries. The data received from them are given below :—

Source of information	Product	C.i.f. of f.o.b.	Quotation (Rs. per cwt.)
1	2	3	4
High Commission of India in the U. K.	1. Sodium Bichromate 2. Potassium Bichromate	c.i.f. Bombay . . . Do . . .	69.33 89.33

1	2	3	4
Embassy of India in the U.S.A.	1. Sodium Bichromate . .	f.o.b. Works . .	69.33 to 78.67
	2. Potassium Bichromate . .	Do . .	96.00 to 105.33
Embassy of India in West Germany.	1. Sodium Bichromate . .	c.i.f. Bombay . .	69.33
	2. Potassium Bichromate . .	Do . .	89.33

The representatives of producers and consumers who attended the public inquiry, agreed that the c.i.f. quotations of Rs. 69.33 for sodium bichromate and Rs. 89.33 for potassium bichromate were reasonable. We have, therefore, decided to adopt these quotations for the purposes of comparison and to find out the extent of advantage or disadvantage of the indigenous products *vis-a-vis* the foreign ones.

13.1 We obtained the costs of production of bichromates from the various producing units. Our Cost Accounts Officer examined in detail the costs of production in two of the major units, namely, Cawnpore Chemical Works Private Ltd., and the Golden Chemicals Private Ltd. His report is forwarded separately as a confidential document along with this report. The break-up of costs into cost of raw materials, conversion charges, depreciation, packing charges, credit for by-products and return on capital is given below:—

(i) *Sodium Bichromate*

(Rs. Per ton)

Details	Cawnpore Chemical Works			Golden Chemicals		
	Commission's estimates in 1954	Actuals 1957	Estimates for future	Commission's estimates in 1954	Actuals 1955-57	Estimates for future
Production (Tons)	526	780	850	600	1,432	1,650
	1	2	3	4	5	6
1. Raw Materials . .	807.90	574.86	562.20	746.40	672.56	665.53
2. Conversion charges . .	747.20	715.32	694.61	774.70	458.84	419.00
3. Depreciation . .	4.00	7.18	4.74	45.80	30.08	33.39

1	2	3	4	5	6	7
4. Packing charges .	36.50	43.34	43.34	32.50	42.25	42.42
	1595.60	1340.70	1304.89	1599.40	1203.73	1160.34
5. Less credit for by-products .	55.40	72.00	90.00	58.70	97.64	97.64
6. Works cost of production .	1540.20	1268.70	1214.89	1540.70	1106.09	1062.70
7. Interest on working capital .	17.30	..	..	16.80	..	..
8. Return on block	26.80	..	..	50.40	..	..
9. Return on capital employed .	..	36.96	33.85	..	41.41	45.89
10. Fair ex-works price	1584.30	1305.66	1248.74	1607.90	1147.50	1108.59

(ii) Potassium Bichromate

(Rs. Per ton)

Details	Cawnpore Chemical Works			Golden Chemicals		
	Commission's estimate in 1954	Actuals 1957	Estimate for future	Commission's estimate in 1954	Actuals 1956-57	Estimate for future
Production (Tons)	*	39	80	..	179.15	200
1. Naked cost of potassium bichromate .	..	1706.38	1598.68	1922.80	1381.25	1344.97
2. Packing charges .	..	43.34	43.34	32.50	42.25	42.42
3. Works cost of production .	..	1749.72	1642.02	1955.30	1423.50	1387.39
4. Interest on working capital	21.40	..	..
5. Return on block	56.00	..	..
6. Return on capital employed .	..	48.11	43.55	..	50.87	56.15
7. Fair ex-works price	..	1797.83	1685.57	2032.70	1474.37	1443.54

*No estimate of fair ex-works price for potassium bichromate was made for this unit in 1954.

13.2. It will be seen from the statements above that both the units have been able to effect considerable economies as a result of increased production as compared with their costs of production in 1953; they have brought down the consumption of raw materials and have reduced the conversion costs. The costs of production of bichromates in

1957 were therefore substantially lower than at the time of the previous inquiry. In estimating the future costs we have taken into account the estimated increase in output in the respective works and have adopted the latest prices available for raw materials. Depreciation is allowed at normal rates admissible under the income-tax rules. The amount of depreciation allowed in the case of Golden Chemicals is substantially higher than that allowed for Cawnpore Chemicals. This disparity is explained by the fact that while Golden Chemicals has recently incurred considerable capital expenditure for modernising its plant and machinery, Cawnpore Chemicals continued to work with its old plant. It is pertinent to add that in spite of higher allocation for depreciation Golden Chemicals has been able to bring down its costs below those of Cawnpore Chemicals partly as a result of its modern plant and equipment and improved technique of production. We have adopted 'employed capital' as the basis for determining the rate of return and in this case have allowed 10 per cent. on the capital employed.

14.1 We propose to take the costs of Golden Chemicals as representative for purposes of comparison with the landed costs ex-duty.

Comparison of fair ex-works prices of indigenous bichromates with ex-duty landed costs of imported products. Golden Chemicals is at present the only major unit which is exclusively engaged in the production of bichromates. In the case of Cawnpore Chemicals, its production of bichromates and their derivatives forms about only 10 per cent. of its total activity. We therefore consider that the fair ex-works prices of Golden Chemicals should be taken as representative of the industry as a whole. The following statement gives a comparison of the fair ex-works prices of indigenous sodium and potassium bichromates with the landed costs of bichromates ex-duty.

(Per Cwt.)

	Sodium Bichromate	Potassium Bichromate
	Rs.	Rs.
1. c.i.f. price	69.33	89.33
2. Customs duty at 35 per cent <i>ad valorem</i>	24.27	31.27
3. Clearing charges	0.50	0.50
4. Landed cost with duty	94.10	121.10
5. Landed cost ex-duty	69.83	89.83
6. Fair ex-works price of the indigenous product	1108.59 per ton or 55.43 per cwt.	1443.54 per ton or 72.18 per cwt.
7. Difference between the fair ex-works price and the landed cost ex-duty	(-) 14.40	(-) 17.65
8. Difference as a percentage on c.i.f.	(-) 20.8 per cent.	(-) 19.2 per cent.

14.2. It will be seen from the figures given above that the domestic costs of bichromates are lower than those of the imported articles by 20.8 per cent. in the case of sodium bichromate and 19.2 per cent. in the case of potassium bichromate. The industry has been enjoying protection for more than 10 years and is now meeting the entire demand of the country. During this period the industry has consolidated its position, for some of the major units have modernised their equipment and improved their technique of production. The quality of indigenous bichromates including the by-products and derivatives is satisfactory. The industry is therefore no longer in need of protection. We, therefore, recommend that the protection granted to the bichromates industry should be discontinued with effect from 1st January, 1959.

15. Tariff item 28(17) at present covers potassium bichromate, sodium bichromate and all chrome compounds. The Central Board of Revenue in a ruling dated 22nd July, 1955 clarified that tariff item 28(17) covered only pure chrome compounds while chrome compounds in the form of paints and colours were assessable to duty as paints and colours under tariff item 30, preparations of chrome compounds for use as printing ink under tariff item 30(6) and preparations of chrome compounds for dyeing and tanning under tariff item 13. The intention of the Tariff Board/Commission when it recommended the grant of protection or its continuance was that all chrome compounds, irrespective of their uses, should be assessed to protective duty under tariff item 28(17). In order to encourage the production of various derivatives in which bichromates are used as raw materials it is suggested that the duty on chrome compounds should not be lower than that on bichromates. The bichromate manufacturers among themselves manufacture the following chrome compounds, namely, basic chrome tan, chromium sulphate, chromic acid, chrome salt, chrome oxide green, ammonium bichromate and sodium chromate. Some of these products are also manufactured by Kesar Sugar Works Ltd., and Phoenix Chemical Works, Bombay who are producers of fine chemicals. Kesar Sugar Works also produces potash chrome alum. A variety of chrome pigments are produced from indigenous bichromates by several units in the paint industry.

16.1. We have not received any specific complaints in regard to the selling prices of bichromates charged by the manufacturers. One consumer, namely, Ascu Wood Products, Calcutta, informed us that potassium bichromate was not readily available in the Calcutta market. The manufacturers, however, contended that there was no shortage of potassium bichromate in the country and that the occasional shortage in Calcutta was due to difficulties in transporting bichromates from the principal producing centres to Calcutta.

16.2. In regard to prices, we would like to point out that since the last inquiry there has been a steady decline in the prices of both sodium and potassium bichromates. Golden Chemicals Private Ltd., has brought down its price for sodium bichromate from Rs. 93 per cwt.

(F. O. R. Bombay) in January 1954 to Rs. 72 per cwt. which is the ruling price now. Similarly, it has reduced the price of potassium bichromate from Rs. 120 per cwt. in January 1954 to Rs. 105 per cwt. The ruling prices (F. O. R. Kanpur) of Cawnpore Chemical Works Private Ltd., for sodium bichromate and potassium bichromate are Rs. 73 per cwt. and Rs. 95 per cwt. respectively. The Buckingham and Carnatic Co. Ltd., however, sells its products at slightly higher prices than those of Golden Chemicals Ltd. The ruling prices are, however, fairly high in relation to the costs of production. The difference between actual fair ex-works price of sodium bichromate of Golden Chemicals and the selling price in 1956-57 was about Rs. 15 per cwt. which was 26 per cent over the fair ex-works price. Similarly, in the case of potassium bichromate, the margin between actual fair ex-works price and the selling price was as high as 42 per cent. This was reflected in the profits earned by Golden Chemicals in 1956-57. The same is the case with other producers. This indicates that the entrepreneurs in a developing industry which on the one hand enjoys a sheltered market and on the other regulates its output in relation to domestic demand are tempted to maintain the selling prices of their products at fairly high levels thus reaping financial benefits that are out of proportion to their fair ex-works prices. We are anxious that in the case of such industries, and particularly bichromates, whose products are primarily used as raw materials by other industries, selling prices should bear a fair relation to their costs because they enter into costs of production of consuming industries thus creating a chain reaction on the general level of prices in the country. We, therefore, recommend that the producers of bichromates should bring down their prices in fair relation to their costs.

17.1 Exports of bichromates have been allowed freely since 1955 but no exports have taken place in recent years except small quantities

Exports. to East Pakistan, 30 cwts. during 1956 and 14 cwts. during 1957. These exports were effected by the Chemical Industries Co. Private Ltd., Calcutta. We understand that there were a few

inquiries from abroad but the Indian manufacturers were unable to quote competitive prices. Though exports have hitherto been negligible we consider that the industry is now in a more favourable position to enter the export market. As a result of increased output and reduction in prices of raw materials like sulphuric acid, the industry has effected economies in its cost of production. Further, the provision of refund of duty on imported raw materials under the Customs Duties Drawback (Dichromates) Rules, 1957 should improve the competitive position of Indian bichromates in export markets.

17.2 We are aware of the present situation in which the industry which sells all its products in the domestic market and earns a high margin of profit, has little or no inducement to develop the export market where the margin of profit is comparatively small. But we feel that the producers in an industry which has enjoyed protection for over a decade and has the benefit of a sheltered market should take a much broader view of their role in the economy of the country. They should

realise that if they endeavour to develop the export business, they will increase their output which will bring about further reduction in their costs of production and that, as a result, their overall margin of profit on their sales in the domestic as well as export markets will be higher than what they realise at present. We trust that the producers of bichromates will be guided by their own enlightened interest and make every effort to develop the export market thereby benefiting themselves as well as the national economy. Government have specified bichromates as one of the articles of export from India in their current Trade Agreements with China, Finland, Greece, Hungary, Norway and Sweden. We, therefore, recommend that the industry should explore the possibilities of promoting exports of bichromates to those and other markets.

17.3. One of the handicaps from which the industry is suffering at present is the relatively high railway freight on raw materials. The Railway Freight Structure Enquiry Committee has recommended in its Report the constitution of a High Level Permanent Committee of the representatives of the Ministries with powers, among other things, to examine the question of preferential freight rates and priority transport for export needs. The constitution of the Committee is now under the consideration of Government, and we, therefore, do not wish to make any specific recommendations at this stage.

18. Our conclusions and recommendations are summarised
Summary of conclusions and recommendations. below :—

(1) The total demand for bichromates in 1957 is estimated at 3,500 tons.

[Paragraph 7.3]

(2) The Export Promotion Council for Leather should take note of our observations made in paragraph 7.4.2. and explore the possibilities of exporting chrome tanned leather and glace kid to an increased extent.

[Paragraph 7.4.2]

(3) Government should examine the complaints of non-availability of arsenic pentoxide, boric acid and borax, and permit importation of the required quantities of these materials by the manufacturers of wood preservatives.

[Paragraph 7.4.3]

(4) Taking the past trends into consideration the future demand for bichromates is expected to increase steadily to 5,000 tons a year by 1960.

[Paragraph 7.4.4]

(5) The consensus of opinion is that the quality of indigenous bichromates is satisfactory and that it conforms to the Indian Standard Specifications.

[Paragraph 9.1]

(6) Protection granted to the bichromates industry should be discontinued with effect from 1st January, 1959.

[Paragraph 14.2]

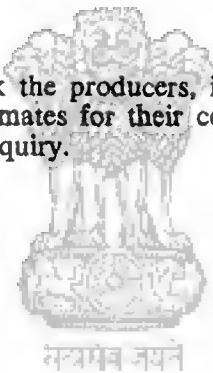
(7) The producers of bichromates should bring down their selling prices in fair relation to their costs.

[Paragraph 16.2]

(8) The bichromates industry should explore the possibilities of promoting exports of bichromates to those countries with whom the Government of India have entered into Trade Agreements specifying bichromates as one of the articles of export from India and to other markets.

[Paragraph 17.2]

19. We wish to thank the producers, importers and consumers of **Acknowledgements.** bichromates for their co-operation in carrying out this inquiry.



K. R. DAMLE
CHAIRMAN

C. RAMASUBBAN
MEMBER

S. K. MURANJAN
MEMBER

J. N. DUTTA
MEMBER

R. S. BHATT
MEMBER

RAMA VARMA,
SECRETARY.

BOMBAY,

Dated 14th April, 1958.



सत्यमेव जयते

APPENDIX I

(Vide Paragraph 3.1)

List of producers, importers, consumers and associations to whom the Commission's questionnaires were issued and from whom replies were received.

*Indicates those who replied.

†Indicates those who stated that they were not interested.

A. PRODUCERS :

1. Hindustan Chemical Works Ltd., Advani Chambers, Sir P. M. Road, Fort, Bombay.
2. Pioneer Chromate Works Ltd., Shree Nivas House (East), Outram Road, Fort, Bombay.
- *3. Golden Chemicals Private Ltd., Vile Parle, Bombay-24.
- *4. Buckingham and Carnatic Co. Ltd., Post Box No. 1966, Madras-1.
- *5. Cawnpore Chemical Works Private Ltd., Anwar Gunj, P. O. Box No. 27, Kanpur,
6. Premier Chromate and Chemical Works Ltd., Sambava Chambers, Sir P. M. Road, Fort, Bombay.
- *7. M. L. Ghosh and Co., Windsor House, Mission Row Extension, Calcutta-1.
- *8. Chemical Industries Co. Ltd., 29, Strand Road, Calcutta.
9. Government Dichromate Factory, Belagula, Mysore.

B. ASSOCIATIONS :

1. The All-India Bichromate Manufacturers' Association, Currimbhoy House (East) Outram Road, Fort, Bombay.
- *2. The Indian Chemical Manufacturers' Association, India Exchange Place Calcutta.

C. CONSUMERS :

- *1. Paint Federation, Royal Exchange, Calcutta.
- *2. Indian Paint Manufacturers' Association, 23-B, Netaji Subhas Road, Calcutta-1.
- *3. The Chrome Leather Co. Ltd., Chromepet P. O., Madras.
- *4. Government Wood Preservation Plant, Bhadravati.
- *5. Khatau Makanji Spinning & Weaving Mills Ltd., Lakshmi Building, Ballard Estate Bombay.
- *6. Hardcastle Waud & Co. Ltd., Alice Building, Hornby Road, Bombay.
- *7. Kesar Suyar Works Ltd., 45-47, Apollo Street, Fort, Post Box No. 746, Bombay.
- *8. India United Mills Ltd., Indu House, Dougall Road, Ballard Estate, Bombay.
- *9. Mysore Chrome Tanning Co. Ltd., Mysore Road, Bangalore-2.
- *10. Tanners Federation of India, Kanpur.
- *11. Morarjee Goculdas Spinning & Weaving Co. Ltd., Sopari Baug Road, Parel, Bom-bay.
- *12. The Western India Tanneries Ltd., Dharavi, Near Mahim Railway Station, Bom-bay-17.
- *13. The Millowners' Association, Vir Nariman Road, Post Box No. 95, Bombay-1.
- *14. Mysore Spinning and Manufacturing Co. Ltd., Bangalore.
15. The C. P. and Berar Millowners' Associations, Post Box No. 3, Nagpur

- *16. Minerva Mills Ltd., Bangalore.
- *17. Western India Match Co. Ltd., Indian Mercantile Chambers, Nicol Road, Ballard Estate, Bombay.
- *18. The Cycle Manufacturers' Association of India, India Exchange, Calcutta-1.
- *19. The Bangalore Woollen, Cotton & Silk Mills Co. Ltd., Agaraharam Road, Bangalore-2.
- *20. M/s. John Taylor and Sons, Wood Preservation Plant, Kolar Gold Fields, Mysore.
- *21. M/s. R. Sen and Co., Wood Preservation Plant, 10/1, Elgin Road, Calcutta.
- 22. The Officer-in-Charge, Wood Preservation Plant, (Forest Department, Government of Bihar), Shahbad, Bihar.
- *23. The Chief Engineer, Electricity Department, Government of Kerala, Trivandrum
- 24. The Officer-in-Charge, Wood Preservation Plant, T. D. E. Laboratories, (Ministry of Defence), Kanpur.
- 25. Aescu Wood Products, 26, Chowringhee Road, Calcutta-13.
- *26. The Officer-in-Charge, Wood Preservation Plant, P. W. Workshop, Sub-Division Dowlaishwaram, Madras.
- 27. The Chief Engineer, Electricity Department, (Wood Preservation Plants), Government of West Bengal, Calcutta.
- 28. The Secretary to the Government of West Bengal, Industries Department, (Wood Preservation Plants), Government of West Bengal, Calcutta.

D. CONSUMERS OF BY-PRODUCTS :

- 1. Indian Paper Mills Association, 23-B, Netaji Subhas Road, Calcutta.
- *2. Indian Paper Makers' Association, Royal Exchange Place, Post Box No. 280, Calcutta.
- 3. All India Glass Manufacturers' Federation, Top Floor, Plaza Cinema, Connaught Circus, New Delhi.
- *4. The Bengal Glass Manufacturers' Association, P-11, Mission Row Extension, Calcutta.
- *5. The Glass Bangles' Merchants Chamber, Firozabad, U. P.
- 6. Northern Indian Glass Manufacturers' Association, C/o. Upper India Glass Works Ltd., Abdullapur City, Ambala.
- 7. The Glass Industrial Syndicate, Firozabad.
- *8. The South Indian Glass Manufacturers' Association, 34, Gandhi Nagar, Bangalore City.
- *9. U. P. Glass Manufacturers' Syndicate, C/o. Kaycee Glass Works Ltd., Shikohabad, U. P.
- 10. Western India Glass Manufacturers' Association, C/o. Industrial and Engineering Apparatus Co. (P) Ltd., Chotani Estate, Proctor-Grant Road, Bombay-7.
- *11. The Atul Products Ltd., Atul, Via Balsar, (Western Railway).
- *12. Hickson and Dadajee Private Ltd., Shree Pant Bhuvan, Sandhurst Bridge, Bombay-7
- *13. Tanners Federation of India, Kanpur.
- *14. The Millowners' Association, Vir Nariman Road, Post Box No. 95, Bombay-1.

E. IMPORTERS :

- *1. Nanvati & Co. Ltd., 16, Apollo Street, Bombay
- *2. Ravel Brothers, 185, Princess Street, Bombay.
- *3. Imperial Chemical Industries, 18, Strand Road, Calcutta.
- *4. Kodak Ltd., Kodak House, Post Box No. 343, Hornby Road, Bombay.
- *5. Chika Private Ltd., Industrial Assurance Building, Churchgate, Bombay-1.

APPENDIX II

[Vide Paragraph 3-3]

List of persons who attended the public inquiry on 18th February, 1958.

PRODUCERS :

1. Mr. J. V. S. Milne	Representing	Buckingham & Carnatic Co. Ltd. Madras.
2. " K. G. Krishnaswamy	Do	Golden Chemicals Private Ltd., Bombay.
3. " Chatrabhuj N. Thacker	Do	The Cawnpore Chemical Works Private Ltd., Kanpur.
4. " P. N. Thacker	Do	Indian Chemical Manufacturers' Association, Calcutta.
5. " Atma Prakash	Do	
6. " C. T. Simon	Do	
7. " J. H. Doshi	Do	
8. " V. N. Shah	Do	

CONSUMERS :

1. " V. P. Pandit	Do	Western India Tanneries, Ltd., Bombay.
2. " M. B. Desai	Do	Kesar Sugar Works Ltd., Bombay.
3. " N. G. Madan	Do	
4. " E. E. Cohen	Do	Paint Federation, Calcutta

GOVERNMENT DEPARTMENTS :

1. " V. Rama Iyer	Do	Development Wing, Ministry of Commerce and Industry, New Delhi.
2. Dr. J. D. Joshi	Do	Director of Industries, Bombay.
3. " A. Purushotham	Do	Forest Research Institute, and Colleges, Dehra Dun.
4. Mr. S. Krishnan	Do	The Textile Commissioner, Bom- bay.
5. " D. K. Sankaran	Do	The Collector of Customs, Bom- bay.

APPENDIX III

[*Vide paragraph 5.2]*

Statement showing capacity and production of Sodium and Potassium Bichromates by the various units in the Bichromates Industry
(In tons)

Name of the Producers	Present annual production		Production of Potassium Bichromate					
	capacity inclusive of capacity for production of 1953	1954	1957	1953	1954	1955	1956	
(A) Units in Production.								
1 Buckingham and Carnatic Co. Ltd.	1,500	724	856	1,211	..	..	8	1
2 Cawnpore Chemical Works Private Ltd.	1,000	527	657	780	..	30	29	39
3 Golden Chemicals Private Ltd.	1,800	464	602	1,433	78	103	144	160
4 Chemical Industries Co. Private Ltd.	180	70	92	43	3	6	4	3
5 M. L. Ghosh and Co.	66	26	19	15	1	1	3	Nil
(B) Units which have gone out of Production.								
6 Hindusthan Chemical Works Ltd.	Discontinued production	227	204	Nil	29	41	2	Nil
7 Pioneer Chromate Works Ltd.	Do.	268	515	Nil	20	45	28	17
8 Premier Chromate & Chemical Works Ltd.	Do.	6	Nil	Nil	8	Nil	Nil	Nil
9 Government Dichromate Factory	Do.	11	51	Nil	1	6	Nil	Nil
TOTAL	4,546	2,323	2,996	2,726	3,046	3,452	2,12	210
							218	201